Shoreview's Urban Forest: An Inventory and Assessment

With increasing development pressure and threats to certain tree species by infectious diseases and pests, Shoreview's urban forest will have a management strategy to ensure that this invaluable resource continues to thrive into the future.

INTRODUCTION

•Shoreview has an extensive urban forest that is highly valued by its residents

•Increasing threats to urban forests such as pests and diseases may dramatically alter the composition of Shoreview's urban forest

•A tree inventory is the first step in effective management

•In the fall of 2009, randomly selected points in Shoreview's parks (PR), commercial areas (COM), road right-of-ways (ROW), and residential plots (RES) were used to gather information about the density and diversity of trees in the city.

•This information will be can be used to maintain and increase diversity and to address future pest or disease outbreaks within the city.

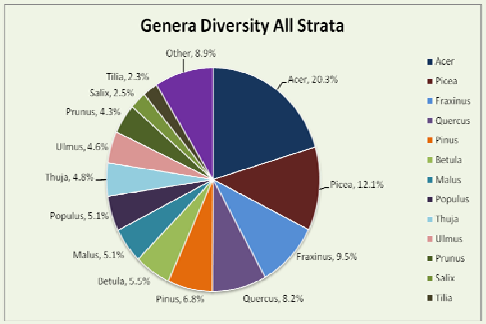
METHODOLOGY

•**A stratified sampling technique** was implemented using fixed radius plots and rectangular plots of 1/10 acre for parks and commercial areas.

•**Trees in each plot were identified to species and the trunk diameter at breast (DBH) height was recorded.**

RESULTS

A total of 2,672 trees were inventoried throughout Shoreview. Seventy-nine species and 26 genera were found in 19 families with only three trees that could not be identified (0.1% of all trees). Species richness was higher in Shoreview when compared to the national average.

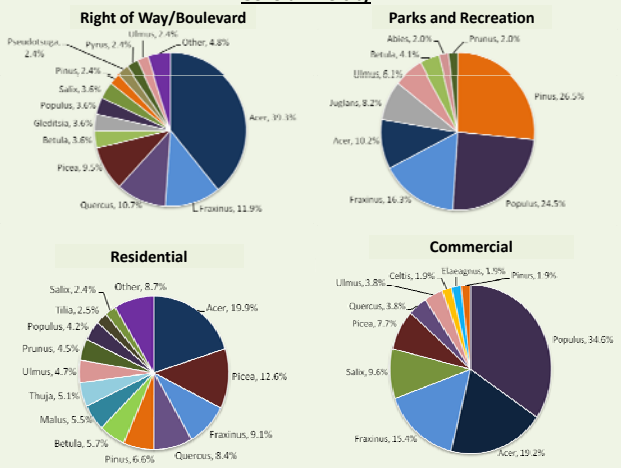


Research conducted by:
Paul Sowers (Group Leader), Esther Balla, Sara Graves, Wendy Macziewski, Katie Prock, and Ryan Reuss.
Problem Solving for Environmental Change.
University of Minnesota, College of Food, Agricultural and Natural Resource Sciences

RESULTS

- ***Acer*** **(maple) represent a considerable portion of 3 out of 4 strata**
- ***Populus*** **(cottonwood) and** ***Pinus*** **(pine) dominate 2 out of 4 strata**
- **Four genera represent 50% of the tree population among all strata, but the overall genera diversity conforms to the 30:20:10 rule**

Genera Diversity



RESULTS

EAB Cost Calculator

A web-based program developed by Purdue University was used to calculate costs of EAB management. Three scenarios are presented representing a variety of management strategies.

1.100% removal and replacement
2.100% treatment with Tree-Age
3.100% removal and replacement of < 15" DBH, 50% removal and replacement and 50% treatment 15-24" DBH, 100% treatment of >24" DBH

Scenario	First Year Cost	Total Cost	% Fraxinus remaining	City Cost (7%)	Private Cost (93%)
1	$2	$9	0	$1	$8
2	$26	$1,242	100	$89	$1,152
3	$14	$517	21	$37	$480
Cost in million dollars					

http://www.inspection.gc.ca/english/plaveg/pestrava/agrpla/images/agrpla14.jpg

RECOMMENDATIONS

1.Maintain and promote tree species diversity within the city for increased resilience to pests and disease threats.

- "30:20:10" guidelines: 30% or less of the trees are in the same botanical family: 20% are in the same genus: 10% are the same species
- Promote spatial and genetic diversity by distributing tree species evenly throughout the community
- Focus on increasing diversity in right-of-way (ROW) and park areas (PR). ROW areas include boulevards or public area set-backs where no sidewalks exist

1.Maintain a long-term inventory of trees in Shoreview to assess changing composition of age and diversity.

- Sample 2000 trees every 5-10 years
- DBH (tree trunk width) and species indicate overall species diversity and age composition

1.Develop a proactive Emerald Ash Borer Management plan

- Management strategies including tree removal and chemical treatment of ash species
- Control is possible but prevention is key
- Account for short and long-term costs, and desired ash canopy composition

http://www.emeraldashborer.info/

CONCLUSION

•Management and monitoring are priorities to ensure that urban forest persists into the future as a high value resource.

•Shoreview has the benefit of above-average species diversity and relatively low ***Fraxinus (ash)*** **population.**

•Diversification efforts should be supported by a continuous urban forest inventory and a tailored Emerald Ash Borer Management plan specific to the needs and constraints of Shoreview.

•These tools will provide the structure required to implement measures effectively and remain congruent with the city's established Comprehensive Management Plan.